

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/09769

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ H02K19/36

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ H02K19/36, H02P9/00, F02N11/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-1996	Jitsuyo Shinan Toroku Koho	1996-2003
Kokai Jitsuyo Shinan Koho	1971-2003	Toroku Jitsuyo Shinan Koho	1994-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	JP 63-202255 A (Mitsubishi Electric Corp.), 22 August, 1988 (22.08.88), All pages; Figs. 1 to 3 (Family: none)	1-3, 6-10, 12-14 4, 5, 11
Y	US 4232238 A (Hitachi, Ltd.), 04 November, 1980 (04.11.80), Full text; Figs. 1 to 8 & JP 54-118507 A Full text; Figs. 1 to 8	1, 2, 6, 14
Y	US 5742498 A (Nippondenso Co., Ltd.), 21 April, 1998 (21.04.98), Full text; Figs. 1 to 13 & JP 8-331818 A Full text; Figs. 1 to 13 & EP 751601 A2 & CN 1146656 A	2, 8, 9

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

 Date of the actual completion of the international search
28 October, 2003 (28.10.03)

 Date of mailing of the international search report
11 November, 2003 (11.11.03)

 Name and mailing address of the ISA/
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5686780 A (Mitsubishi Denki Kabushiki Kaisha), 11 November, 1997 (11.11.97), Column 1, line 11 to column 2, line 4; Figs. 14 to 17 & JP 8-251889 A Par. Nos. [0002] to [0004]; Figs. 14 to 17 & EP 731550 A2 & CN 1133506 A & KR 216152 B	3,10,12,13
Y	JP 60-216752 A (Robert Bosch GmbH.), 30 October, 1985 (30.10.85), Full text; Fig. 1 & DE 3411804 A & AU 3810385 A1 & FR 2562008 A & BR 8501454 A	3
Y	JP 2001-268869 A (Mitsubishi Electric Corp.), 28 September, 2001 (28.09.01), Par. No. [0031]; Fig. 8 (Family: none)	7